

CLAIMS

1. A promoter DNA for expression in the presence of an organic acid, having the sequence set forth in any one of the following (a)-(c):

(a) a DNA consisting of the sequences set forth in any one of SEQ ID NOs: 1-6.

(b) a DNA that hybridize under stringent condition with the DNAs consisting of the sequences set forth in any one of SEQ ID NOs: 1-6.

(c) a DNA carrying 1 or more bases of substitution, deletion, addition, and/or insertion in the sequences set forth in any one of SEQ ID NOs: 1-6.

2. A fragment of the promoter DNA according to Claim 1, being a promoter DNA for expression in the presence of an organic acid.

3. A promoter DNA for expression in the presence of an organic acid, having promoter activity of high osmolarity response 7 gene (HOR7 gene), glyceraldehyde 3 phosphate dehydrogenase 2 gene (TDH2 gene), heat shock protein 30 gene (HSP30), hexose transport protein 7 gene (HXT7 gene), thioredoxin peroxidase 1 gene (AHP1 gene), or membrane protein 1 associated gene (MRH1 gene) of yeast *Saccharomyces*.

4. The promoter DNA according to any one of Claims 1 to 3, being used for expression of DNA for organic acid production.

5. The promoter DNA according to Claim 4, wherein the organic acid is lactic acid.

6. A DNA construct for gene recombination, including the promoter DNA according to any one of Claims 1 to 3.

7. The DNA construct according to Claim 6, including a DNA that is operatively associated with the promoter DNA and encodes a protein

involved in organic acid production.

8. The DNA construct according to Claim 7, wherein the protein involved in organic acid production has lactate dehydrogenase activity.

9. The DNA construct according to Claim 8, wherein the protein is bovine lactate dehydrogenase.

10. The DNA construct according to any one of Claims 6 to 9, including DNA for homologous recombination of yeast genes with an autoregulatory mechanism.

11. The DNA construct according to Claim 10, wherein the yeast gene is pyruvate decarboxylase 1 (PDC1) gene.

12. The DNA construct according to any one of Claims 6 to 11, being plasmid or a virus vector.

13. A transformant carrying the promoter DNA according to any one of Claims 1 to 3.

14. The transformant according to Claim 13, carrying a DNA that is operatively associated with the promoter DNA and encodes a protein involved in organic acid production.

15. The transformant according to Claim 14, wherein the protein involved in organic acid production has lactate dehydrogenase activity.

16. The transformant according to Claim 14 or 15, wherein the promoter DNA according to any one of Claims 1 to 3 and the DNA that encode a protein involved in organic acid production are integrated into a host chromosome.

17. The transformant according to any one of Claims 13 to 16, being a yeast transformant.

18. A yeast transformant, wherein a yeast gene with an

autoregulatory mechanism is disrupted by having at least part of the promoter DNA according to any one of Claims 1 to 3 and a DNA that is operatively associated with the DNA that encodes a protein with lactate dehydrogenase activity on the chromosome.

19. The yeast transformant according to Claim 18, wherein the yeast gene with an autoregulatory mechanism is pyruvate decarboxylase 1 gene.

20. The yeast transformant according to Claim 19, wherein the protein with lactate dehydrogenase activity is bovine lactate dehydrogenase.

21. The yeast transformant according to any one of Claims 18 to 20, wherein the yeast belongs to *Saccharomyces*.

22. An expression method of objective gene, using a host cell carrying a promoter DNA according to any one of Claims 1 to 3 and a DNA that is operatively associated at the downstream region of the promoter DNA and encodes a predetermined protein.

23. The expression method according to Claim 22, wherein the culture system of the host cell contains an organic acid.

24. The expression method according to Claim 22 or 23, wherein the host is yeast carrying a gene with an autoregulatory mechanism, which is disrupted by having at least part of the promoter DNA according to any one of Claims 1 to 3 and a DNA that is operatively associated with the promoter DNA that encodes proteins with lactate dehydrogenase activity on chromosome.

25. The expression method according to Claim 24, wherein the protein is a protein involved in organic acid production.

26. The expression method according to Claim 25, wherein the protein is a protein with lactate dehydrogenase activity.

27. The production method of an organic acid using a yeast transformant having the DNA according to any one of Claims 1 to 3 and DNA that is operatively associated at the downstream region of the DNA and encodes proteins involved in organic acid production.

28. The production method according to Claim 27, wherein the organic acid is lactic acid and the protein is a protein with lactate dehydrogenase activity.

29. The production method according to any one of Claim 27 or 28, wherein the DNA is retained on yeast chromosome and pyruvate decarboxylase 1 gene is disrupted by at least a part of the DNA.

30. A DNA having promoter activity according to any one of the following (a)-(c):

(a) a DNA consisting of the sequence set forth in any one of SEQ ID NOs: 1-6.

(b) a DNA that hybridize DNA consisting of a sequence set forth in any one of SEQ ID NOs: 1-6 under stringent condition.

(c) a DNA carrying 1 or more bases of substitution, deletion, addition, and/or insertion in the sequence set forth in any one of SEQ ID NOs: 1-6.

31. A fragment of the DNA according to Claim 29, having promoter activity.